

P a t e n t   c l a i m s

1.

A method for manufacturing panel bodies of plastic material, where the plastic material is injected into a mould cavity of a mould for the filling thereof, wherein after the injection of the plastic material the mould cavity is caused to expand from a first volume (V1) to a second, larger volume (V2), whilst the plastic material expands, the plastic material having added thereto a drive means, and the moulded flat body is subsequently removed from the cavity of the mould, characterised in

- 10 - that prior to the injection of the plastic material, strings, bars, tubes or netting of reinforcing material are placed in recessed portions of the first volume of the mould cavity;
- that the reinforcing material is held up point-by-point by pushers that project up through the respective bottoms of said recessed portions until the recessed portions have been filled with plastic material to surround the reinforcing material; and
- 15 - that the pushers are withdrawn from the recessed portions and thus from support of the reinforcing material as the mould cavity expands to its second volume.

20 2.

A method as disclosed in claim 1, characterised in

- that the mould cavity in its second volume has its bottom part level with the bottom of said recessed portions.

25 3.

A method as disclosed in claim 1 or 2, characterised in

- that the plastic material is a polyolefin material, e.g., polyethylene or polypropylene.

30 4.

A method as disclosed in claim 1, 2 or 3, characterised in

- that the plastic material has a talcum added thereto.

35 5.

A method as disclosed in claim 1 or 2, characterised in

- that the first volume (V1) is in the range of 10 – 60% of the second volume (V2), preferably 15 – 45% of the second volume, or more preferably about 27 – 30%.

5 6.

A method as disclosed in claim 1, characterised in

- that the drive means is a foaming agent or a blowing agent.

7.

10 An apparatus for manufacturing panel bodies of plastic material, wherein the plastic material is injectable into a mould cavity of a mould for the filling thereof, where the mould cavity is equipped with a movable mould bottom (39, 40, 43, 55 and 58), which in a first position defines a first volume (V1) of the cavity and in a second position defines a second, larger volume (V2) of the cavity, characterised in

- 15 - that the apparatus has a means (25, 30, 56) for locking the mould bottom in the first position until the first volume has been filled by plastic material to which a drive means has been added;
- that the mould bottom in a known way is designed to move to its second position as the plastic material expands, the panel body thus acquiring said second
- 20 volume;
- that in the mould cavity (59), in connection with the first volume, there are provided recessed portions designed for the placement of reinforcing material (60) of strings, bars, tubes or netting prior to the injection of the plastic material;
- that pushers (21) are designed to movably project up through the bottom of the
- 25 respective recessed portions in order at some points to hold the reinforcing material above the said bottom until the recessed portions have been filled with plastic material by its injection into the mould cavity (59) to surround the reinforcing material; and
- that the pushers (21) are designed to be withdrawn from the recessed portions
- 30 and from supporting engagement with the reinforcing material as the mould cavity expands to its second volume.

8.

An apparatus as disclosed in claim 7, characterised in that the mould bottom is

35 composed of a plurality of movable mould components (39, 40, 43, 55 and 58).

9.

An apparatus as disclosed in claim 7, characterised in

- that the mould bottom consists of individually movable mould components (39, 40, 43, 55 and 58).

5

10.

An apparatus as disclosed in claim 7, 8 or 9, characterised in

- that said mould bottom is supported by at least one bottom anchor bar which on its underside has a plurality of cut-outs or pressure pad receivers; and
- 10 - that said locking means consists of an elongate body with upwardly facing pressure pad elements, where each pressure pad element is designed to be complementary to the shape of the cut-out, and where said elements in a locking position of the mould bottom each support an underside portion of the bottom anchor bar, and in a non-locking position permit, on expansion of the plastic
- 15 material, a downward movement of the mould bottom components, the cut-out thus being moved into engagement with a respective pressure pad element.

11.

An apparatus as disclosed in claim 7, 8, 9 or 10, characterised in

- 20 - that the mould cavity in its second volume is designed to have its bottom part level with the bottom of the respective said recessed portions.

12.

An apparatus as disclosed in one or more of claims 7-11,

25 characterised in

- that the plastic material is a polyolefin material, e.g., polyethylene or polypropylene.

13.

30 An apparatus as disclosed in one or more of claims 7-12, characterised in

- that the plastic material has talcum added thereto.

14.

An apparatus as disclosed in one or more of claims 7-13, characterised in

- 35 - that the first volume is in the range of 10 – 60% of the second volume, preferably 15 – 45% of the second volume, preferably about 27 – 30%.

15.

Use of a method as disclosed in one or more of claims 1-6, for manufacturing reinforced panel bodies for use as floor, wall or ceiling panels, or as shuttering or trim panels.

5 16.

Use of an apparatus as disclosed in one or more of claims 7-14, for manufacturing reinforced panel bodies for use as floor, wall or ceiling panels, or as shuttering or trim panels.